

ISSN 2063-2142

JOURNAL FOR HEALTH SCIENCES

University of Miskolc

Volume 8, Issue 1



**Miskolc University Press
2018**

JOURNAL FOR HEALTH SCIENCES – UNIVERSITY OF MISKOLC
Volume 8, Issue 1 (2018)

Edited by the Editorial Board of Journal for Health Sciences – University of Miskolc

Chairman of the Editorial Board:

PROF. DR. LÁSZLÓ BARKAI

head of institute, professor

Editor-in-Chief:

PROF. DR. BERTALAN FODOR

head of institute, professor

Editorial Board:

Paed dr. Beáta Dobay	head of department, senior lecturer
Dr. Kinga Kálcza-Jánosi	senior lecturer
Dr. Márta Zsuzsa Kerékgyártó	assistant research fellow
Dr. Emőke Kiss-Tóth	dean, college professor
Dr. Andrea Lukács	associate professor
Dr. János Martos	head of department, college professor
Prof. dr. Olivér Rácz	professor emeritus
Dr. Attila Valikovics	vice dean, associate professor

Lectors:

Violetta Czingolya-Fodor	molecular biologist
Éva Kiss-Tóth Dojcsákné	assistant research fellow
Prof. dr. Bertalan Fodor	head of institute, professor
Prof. dr. Vilmos Fülöp	professor
Dr. Beáta Hubková	assistant professor
Dr. Kinga Kálcza-Jánosi	senior lecturer
Dr. Márta Zsuzsa Kerékgyártó	assistant research fellow
Dr. Judit Plachy Kopkáné	senior lecturer
Dr. Andrea Lukács	associate professor
Dr. Zsófia Patkó	senior lecturer
Prof. dr. Olivér Rácz	professor emeritus

CONTENTS

<i>Andrea Lukács–Péter Sasvári–Beatrix Varga–Emőke Kiss-Tóth– Éva Dojcsák Kiss-Tóth</i>	
Measuring Life Orientation of University Students.....	5
<i>Nadezhda Petrushkina–Yulia Kosyreva–Olga Kolomiets–Mária Koppányiné Szendrák– Eleonóra Juhász–Emőke Kiss-Tóth</i>	
Influence of Specialized Sports Clubs Lessons on Physical Development over Primary School Boys, Studying at Innovative Schools	14
<i>Beáta Veliká–Zuzana Gažová–Dagmar Sedláková–Ratislav Dudič–Anna Birková– Peter Urdžík–Mária Mareková</i>	
Evaluation of Amniotic Fluid Surface Tension Levels during Gestation – Pilot Study	24
<i>Anna Birková–Beáta Veliká–Beáta Hubková–Marcela Valko-Rokytovská– Mária Mareková</i>	
Tumor-Derived Extracellular Vesicles	30
<i>Terezia Kiskova–Vlasta Demeckova–Katarina Venglovska–Zuzana Jendzelovska– Janka Topitzerova–Dagmar Mudronova–Sona Gancarcikova</i>	
Alkaline Water is Ineffective in Breast Cancer Prevention	35
<i>Veliká Beáta–Anna Birková–Beáta Hubková–Marcela Valko-Rokytovská– Mária Mareková</i>	
Mitochondrial Diseases Connected with Electron Transport System Deficiencies and its Application in Diagnostic Process.....	51

MEASURING LIFE ORIENTATION OF UNIVERSITY STUDENTS

ANDREA LUKÁCS^{1*}–PÉTER SASVÁRI^{2,3}–BEATRIX VARGA⁴–
EMÓKE KISS-TÓTH¹–ÉVA DOJCSÁK KISS-TÓTH¹

¹*Faculty of Health Care, University of Miskolc, Miskolc*

²*Faculty of Informatics and Mechanical Engineering, University of Miskolc, Miskolc*

³*National University of Public Service, Budapest*

⁴*Faculty of Economics, University of Miskolc, Miskolc*

Abstract

An optimistic or a pessimistic outlook is directly related to the attitude about the circumstances of one's life. Optimistic personality trait is important for students as it can determine how successfully they are in the academic years and in their future career. This study aimed to investigate life orientation in a university population and find its associated factors. In this cross-sectional study, participants were recruited from the campuses of two universities, the University of Miskolc (41%) and the National University of Public Service (59%). A total of 521 students' data were analyzed (male 29.2%, female 66.4% and missing data 4.4%). The mean age was 23.8 (5.17) years old. There were no significant differences between males and females in life orientation, but in our sample both males and females were significantly more pessimistic than optimistic. Stepwise regression analysis for life orientation found five significant predictors: depression, sleep quality, physical fitness, weekly amount of exercise, and marital status. These findings suggest that more optimistic students are in relationships, are less depressive, have good sleep quality, and are engaged in regular exercise, leading to having good physical fitness.

Keywords: optimism, pessimism, university students

INTRODUCTION

An optimistic or a pessimistic outlook is directly related to the attitude about the circumstances of one's life. The tendency to expect the best and recognize the good in things gives a person hopefulness and confidence that promote the ability to overcome difficulties. The ways in which optimists and pessimists differ in their approach to the world have substantial impact on their lives [1]. There is an assumption that the optimism-pessimism relationship varies through life. People may shift positions on the optimism-pessimism continuum as time passes. An optimistic personality trait is important for students as it can determine how successful they are. There is some evidence that optimism is associated with higher academic performance [2]. Alacron et

* Corresponding author: Andrea Lukács, PhD; Faculty of Health Care, University of Miskolc; 3515 Miskolc-Egyetemváros, Hungary; Phone: +36/46/565-111/2215; E-mail: lukacs.andrea@uni-miskolc.hu

al. in their meta-analysis found positive correlation with life satisfaction, happiness, and psychological and physical well-being, and negative correlation with depression and anxiety [3]. In the study of Giltay et al. optimistic people consume less alcohol, smoke less, and are more physically active [4]. In general, optimistic people have better mental and physical health and have healthier behaviors and lifestyles than pessimistic people [5, 6].

There are not enough research studies into the positive and negative impact of optimism and pessimism among university student populations. To fill this gap, our study aimed to investigate life orientation in a university population and find its associated factors.

MATERIALS AND METHODS

Study design and ethics

In this cross-sectional study, participants were recruited via the student educational administration systems from the campuses of two universities, the University of Miskolc (41%) and the National University of Public Service (59%). Students were asked to complete an online questionnaire that took approximately 15–20 minutes. An introduction text was presented about the purpose of the survey, the voluntary nature of participation, and the anonymity of participants. Students gave informed consent about their participation by clicking the corresponding button.

The questionnaires were adapted from the original French survey, EurECAS: European Evaluation of Comportment and Addiction among Students. This survey was designed at the University of Rouen in France in 2017.

Our study was approved by the local Institutional Ethics Committee.

Measures

Socioeconomic characteristics

Students provided data about sociodemographic characteristics such as sex, age, marital status (single or in a relationship), job during study (yes/no), scholarship (yes/no), financial difficulties (from 1 = no problem to 5 = real problem), and accommodation (1 = rental/roommate, 2 = with parents, 3 = university residence, 4 = own flat, 5 = other). Students also gave information about their height and weight for calculating BMI. According to the Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity (2018) classification, the cut-off points were the following: underweight BMI < 18.50, normal range BMI between 18.50 and 24.99, overweight BMI ≥ 25.00 , and obese BMI ≥ 30.00 [7].

Life orientation

The Life Orientation Test Revised (LOT-R) was used to measure generalized optimism as a construct of a continuous distribution expecting positive or negative outcomes. This 10-item test is comprised of three positively- (optimism) and three

negatively- (pessimism) worded items with four items serving as fillers whose scores are not calculated. Respondents rated each item on a 4-point scale from 0 = strongly disagree to 4 = strongly agree. There are no cut-off points for optimism or pessimism; a higher score implies more optimism [8]. Subscales can be used separately to compare investigated variables to pessimism. The internal reliability of the scale was good in our sample ($\alpha = .815$). The LOT-R is adapted for Hungarian usage [9].

Emotional profile

The Depression Anxiety Stress Scales (DASS-21) were used to evaluate the emotional profile of the students. The DASS-21 consists of three 7-item scales that measure depression, anxiety and stress. Respondents indicate on a 4-point scale the extent to which each of the 21 statements applied to them over the previous week from 0 (did not apply at all) to 3 (applied very much, or most of the time). The total sum score denotes the general distress of the participants [10]. The internal reliability of the scale was excellent in our sample ($\alpha = .943$).

Physical fitness and sports practice

The International Fitness Scale (IFIS) gives a measure of fitness based on the answers to five basic questions about fitness on a 5-point Likert scale. Higher scores indicate better physical fitness [11]. The internal reliability of the scale was good in our sample ($\alpha = .833$). Students additionally reported the length of time per week practicing sports either for leisure or competition.

Sleep quality and night sleep time

Sleep quality and average night sleep time were measured with single items: ‘How do you qualify your quality of sleep?’ rated from 1 (not at all refreshing) to 5 (completely refreshing), and ‘How many hours do you sleep on average each night?’

Eating disorders

The SCOFF questionnaire is a 5-item screening tool used to identify possible eating disorders such as anorexia nervosa, bulimia nervosa, and binge eating in young adults [12, 13]. The questionnaire includes five dichotomous questions, and score of 2/5 indicates possible eating disorders.

Alcohol use

Alcohol abuse problems were evaluated using the Alcohol Use Disorders Identification Test (AUDIT) [14]. This 10-item test identifies persons with hazardous and harmful drinking habits and those with risk of alcohol dependence. Higher scores indicate greater likelihood of hazardous and harmful drinking. A score of 8 or more is considered to indicate hazardous or harmful alcohol use. The internal reliability of the scale was adequate in our sample ($\alpha = .751$).

Tobacco and cannabis use

Students reported their tobacco use by classifying themselves as a current smoker, former smoker, or a never smoker. A current smoker smokes at least one cigarette a day. A cannabis user was considered a person who has consumed cannabis at least once in the previous 30 days.

Statistical analysis

Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS Version 24.0 for Windows). Data analysis was performed through frequency, percentage, mean, and standard deviation, as well as Spearman's coefficient of rank correlation, one-way ANOVA, and independent and paired-sample t-tests. The significance level was set at $p \leq 0.05$. The Cohen effect sizes are designated as small (0.10–0.29), medium (0.30–0.49), and large (≥ 0.50).

RESULTS

Participants

A total of 534 students completed the questionnaire, but 13 questionnaires were not included because of missing data in the Life Orientation Test Revised. The data of 521 students were used. The characteristics of the students are displayed in *Table 1*.

Table 1
Characteristics of the study participants

Mean (SD), frequency	Students
Sample size	521
Sex ratio – Male : Female : MD	29.2 : 66.4 : 4.4
Age	23.8 (5.17)
BMI category (%) UW : N : OW : O : MD	7.9 : 63.3 : 20.9 : 6.9 : 1.0
Marital status (%) single : in relationship : MD	48.4 : 50.1 : 1.5
Job during study (%) yes : no : MD	59.5 : 40.1 : 0.4
Scholarship (%) yes : no : MD	38.8 : 59.3 : 1.9
Living location during term (%) rental/roommate : with parents : uni residence : own flat : other : MD	16.9 : 35.9 : 22.8 : 16.9 : 6.9 : 0.6
Financial difficulties (%) 1 no : 2 : 3 : 4 : 5 real financial difficulties : MD	22.5 : 22.5 : 36.1 : 10.9 : 6.3 : 1.7

UW – underweight, N – normal, OW – overweight, O – obese; MD – missing data

LOT-R characteristics

Table 2 presents the descriptive statistics of the scale. There were no significant differences between males and females in items, subscales, and total scale scores. In our sample, both males and females were more pessimistic than optimistic. Males: $M_{\text{(pessimism)}} = 7.97$ (2.51) vs. $M_{\text{(optimism)}} = 6.91$ (2.56); $p < .001$; Females: $M_{\text{(pessimism)}} = 8.14$ (2.67) vs. $M_{\text{(optimism)}} = 7.05$ (2.71); $p < .001$.

Table 2
Descriptive statistics of items, subscales and total scores

Mean (SD)	Students total (N = 521)	Males (n = 152)	Females (n = 346)
Item 1 – In uncertain times, I usually expect the best	1.65 (1.23)	2.05 (1.02)	1.99 (1.12)
Item 3* – If something can go wrong for me, it will	2.49 (1.06)	2.46 (1.01)	2.51 (1.05)
Item 4 – I am always optimistic for my future	2.53 (1.06)	2.45 (1.01)	2.58 (1.07)
Item 7* – I hardly ever expect things to go my way	2.88 (1.08)	2.85 (1.03)	2.92 (1.08)
Item 9* – I rarely count on good things happening to me	2.66 (1.12)	2.66 (1.05)	2.70 (1.15)
Item 10 – Overall, I expect more good things to happen to me than bad	2.44 (1.15)	2.40 (1.06)	2.47 (1.18)
Optimism subscale	6.97 (2.67)	6.91 (2.56)	7.05 (2.72)
Pessimism subscale	8.03 (2.65)	7.97 (2.51)	8.14 (2.67)
LOT-R total score	15.00 (4.73)	14.88 (4.53)	15.18 (4.76)

*Items were reverse-scored

Spearman's coefficient of rank correlation was computed to measure the relationship between life orientation and age, BMI, financial difficulties, accommodation options, sleep quality, and average night's sleep, as well as weekly exercise hours, physical fitness status, and emotional distress.

Results showed that life orientation had significant positive correlation with age, sleep quality, weekly exercise hours, and physical fitness status. A significant negative relationship was observed with financial difficulties, stress, and anxiety with the strongest association showing with depression. Effect sizes are demonstrated in Table 3. Depression had strong positive relationship with the pessimism subscale ($Rho = .591$; $p < .001$), and strong negative relationship with the optimism subscale ($Rho = -.555$; $p < .001$).

Table 3
Correlations between LOT-R total score
and the study variables

<i>Variables</i>	<i>Rho</i>
Age	.102*
BMI	-.041
Financial difficulties	-.131**
Accommodation option	.005
Sleep quality	.361***
Average night sleep	.079
Weekly exercise hours	.151**
Fitness status	.230***
Stress	-.470***
Anxiety	-.443***
Depression	-.647***

*p < .05, **p < .01, ***p < .001

A one-way ANOVA was performed between life orientation as the dependent variable and sex ($F = .43$, $p > .05$), marital status ($F = 12.76$, $p < .001$), job during study ($F = 2.87$, $p > .05$), scholarship ($F = 1.51$, $p > .05$), smoking ($F = 1.50$, $p > .05$), illicit drug use ($F = 2.97$, $p > .05$), alcohol abuse ($F = .76$, $p > .05$), as well as eating disorders ($F = 67.61$, $p < .001$), as the independent variables. Students with eating disorders (11.88, $DS = 4.82$) scored significantly lower than peers without problems (15.83, $SD = 4.36$; $p < .001$).

Explanatory variables of life orientation

Using the significant variables, a multiple regression analysis was conducted. The results of the final regression model indicated that the five predictors explained 47.5% of the variance ($F_{(5, 366)} = 64.63$, $p < .001$). It was found that depression, physical fitness, sleep quality, weekly amount of exercise, and marital status significantly predicted students' life orientation. (Table 4)

Table 4
Stepwise regression analysis for life orientation ($N = 521$)

<i>Variables</i>	<i>B</i>	<i>SE(B)</i>	<i>β</i>
Depression	-.596	.042	-.591***
Physical fitness	.110	.049	.091*
Sleep quality	.408	.194	.089*
Weekly amount of exercise	.131	.060	.087*
Marital status	.948	.367	.100**
$R = .689$, $R^2 = .475$, $AR^2 = .468$			

*p < .05 **p < .01 ***p < .001

DISCUSSION

In this study, students' life orientation was assessed from a multidimensional approach using LOT-R. This scale measures pessimism and optimism as opposite ends of a continuum. The findings revealed that Hungarian students are more pessimistic than optimistic measured on this continuum. Tóth and Kovács compared Hungarian students studying in the home country and abroad (in Austria) and foreign students studying in Hungary [15]. According to their results, Hungarian students studying in Hungary were more pessimistic than the Hungarians studying abroad and the foreign students studying in Hungary. On the contrary, Bérdi and Köteles found Hungarian students more optimistic than pessimistic measuring with LOT-R [16]. One of the reasons for this difference might be the different beliefs about optimism and pessimism [17], but further research is needed to verify this concept.

In our convenience sample, we found depression as the strongest variable in life orientation. This is in line with Wong's study assessing adolescents [18]. He found both optimism and pessimism uniquely contributed to the variance in depression. Students in a relationship scored higher on the scale. It implies that having a partner in the student years gives a positive attitude towards the future. Health behavior is not fully confirmed as a variable in our study. Smoking, alcohol consumption, and illicit drug use did not show a relationship with optimism, but better sleep quality contributed more toward an optimistic outlook. We found important our findings that both better physical fitness and more weekly time for exercising were predictive variables of more an optimistic view. Because of the cross-sectional design of our study, only association and not causation can be inferred. We presume that involvement in regular physical exercise precedes the development of optimism and positively influences an individual's life orientation. It enhances self-efficacy and self-esteem, improves mental and physical health, and decreases stress, anxiety, and depression [19]. In the Student's t-test, we found differences between students with and without eating disorders, but in the logistic analysis it was not an explanatory variable for life orientation. In conclusion, these findings suggest that more optimistic students are in relationships, are less depressive, have good sleep quality, and are engaged in regular exercise, which leads to having good physical fitness.

Finally, this study reports data from university students, and we believe that this study with its findings can contribute to the existing literature on life orientation in university students.

ACKNOWLEDGMENTS

The described article/presentation/study was carried out as part of the EFOP-3.6.1-16-00011 "Younger and Renewing University – Innovative Knowledge City – institutional development of the University of Miskolc aiming at intelligent specialization" project implemented in the framework of the Széchenyi 2020 program. The realization of this project is supported by the European Union and co-financed by the European Social Fund.

REFERENCES

- [1] Carver, C. S., Scheier, M. F. & Segerstrom, S. C. (2010). Optimism. *Clin Psychol Rev.*, Jan., 30 (7), pp. 879–889.
- [2] Singh, I., Jha, A. (2013). Anxiety, optimism and academic achievement among students of private medical and engineering colleges: a comparative study. *JEDP*, 3 (1), pp. 222–233.
- [3] Alarcon, G. M., Bowling, N. A. & Khazon, S. (2013). Great expectations: A meta-analytic examination of optimism and hope. *Pers Individ Dif.* May, 54 (7), pp. 821–7. doi:10.1016/j.paid.2012.12.004
- [4] Giltay, E. J., Geleijnse, J. M., Zitman, F. G., Buijsse, B. & Kromhout, D. (2007). Lifestyle and dietary correlates of dispositional optimism in men: The Zutphen Elderly Study. *J Psychosom Res.*, Nov., 63 (5), pp. 483–90.
- [5] Rezaei, S., Mousavi, S., Safari, F., Bahrami, H. & Menshadi, S. (2015). Study of relationship between optimism, pessimism and coping strategies with mental health among university students of Lorestan. *JSS*, 3, pp. 190–5.
- [6] Fernández-González, L., González-Hernández, A. & Trianes-Torres, M. V. (2015). Relationships between academic stress, social support, optimism-pessimism and self-esteem in college students. *EJREP*, 13 (1), pp. 111–130.
- [7] *Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity*. About adult BMI. <http://www.cdc.gov/healthyweight/>. Accessed 03 June 2018
- [8] Scheier, M. F., Carver, C. S. & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery and self-esteem): a reevaluation of the Life Orientation Test. *J Pers Soc Psychol.*, Dec., 67 (6), pp. 1063–1078.
- [9] Bérdi, M. & Köteles, F. (2010). The measurement of optimism: the psychometric properties of the Hungarian version of the Revised Life Orientation Test (LOT–R). *Hungarian Psychological Review*, 65 (2), pp. 273–294.
- [10] Lovibond, P. F. & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behav Res Ther.*, March, 33 (3), pp. 335–343.
- [11] Ortega, F. B., Ruiz, J. R., España-Romero, V., Vicente-Rodriguez, G., Martínez-Gómez, D. & Manios, Y. et al. (HELENA study group) (2011). The International Fitness Scale (IFIS): usefulness of self-reported fitness in youth. *Int J Epidemiol.*, June, 40 (3), pp. 701–711.

-
- [12] Morgan, J. F., Reid, F. & Lacey, J. H. (1999). The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ*, Dec., 4, 319 (7223), pp. 1467–1468.
- [13] Parker, S. C., Lyons, J. & Bonner, J. (2005). Eating disorders in graduate students: exploring the SCOFF questionnaire as a simple screening tool. *J Am Coll Health*, Sept.–Oct., 54 (2), pp. 103–107.
- [14] Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R. & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption II. *Addiction*, June, 88 (6), pp. 791–804.
- [15] Tóth, M. D. & Kovács, J. (2011). “Hungarian moaner” — Comparing optimism and subjective well-being among Hungarian and foreign university students studying at home and abroad. *Mentálhigiéné és Pszichoszomatika*, 12 (4), pp. 277–298.
- [16] Bérdi M. & Köteles F. (2010). Az optimizmus mérése: az Életszemlélet Teszt átdolgozott változatának (LOT–R) pszichometriai jellemzői hazai mintán. *Pszichológiai Szemle*, June, 65 (2), pp. 273–294.
- [17] Herzberg, P. Y., Glaesmer, H. & Hoyer, J. (2006). Separating Optimism and Pessimism: A Robust Psychometric Analysis of the Revised Life Orientation Test (LOT–R). *Psychol Assess*, Dec., 18 (4), pp. 433–438.
- [18] Wong, S. S. & Lim, T. (2009). Hope versus optimism in Singaporean adolescents: Contributions to depression and life satisfaction. *Pers Individ Dif.*, Apr., 46 (5–6), pp. 648–652.
- [19] Pavey, T. G., Burton, N. W. & Brown, W. J. (2015). Prospective relationships between physical activity and optimism in young and mid-aged women. *J Phys Act Health*, July, 12 (7), pp. 915–923.

Kiadja a Miskolci Egyetem Tudományos és Nemzetközi Rektorhelyettesi Titkárság
A kiadásért felelős: Prof. dr. Kékesi Tamás rektorhelyettes
A kéziratot gondozta a Miskolci Egyetemi Kiadó
A kiadó felelős vezetője: Szendi Attila
Készült a Miskolci Egyetem Soksorozító Üzemében, Miskolcon
A sokszorozításért felelős: Pásztor Erzsébet
Példányszám: 30
TNRT–2018–479–ME